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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/575,253	04/10/2006	Ryosuke Nakano	Q105981	9644

65565 7590 01/13/2009

SUGHRUE-265550
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EXAMINER	
HIRIYANNA, KELAGINAMANE T	
ART UNIT	PAPER NUMBER
1633	

MAIL DATE	DELIVERY MODE
01/13/2009	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/575,253	NAKANO ET AL.	
	Examiner	Art Unit	
	KELAGINAMANE T. HIRIYANNA	1633	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *26 September 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-27* is/are pending in the application.

4a) Of the above claim(s) *14-27* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-13* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *04/06, 08/06, 11/06*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Restriction of invention

Applicant's election with traverse the invention Group I (Claims 1-13) for further prosecution on merits in the reply filed on September 26, 2008 is acknowledged. The Applicant traverses on the grounds that search for Group I will necessarily reveal art related to Group IV and hence there is no search burden. The applicants arguments are however, found not persuasive because Group IV are directed to products made by a different and a specific process that further specify the cells as grown in a medium that does not contain any protein and grow to specific density characteristics and thus requires further search and examination considerations. Therefore a restriction as indicated is proper and made final. Applicant's election of species is noted.

Claims 1-13 are pending and presently under examination.

Claims 14 -27 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a non-elected claims, there being no allowable generic or linking claim.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:
The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 1-13 rejected as failing to define the invention in the manner required by 35 U.S.C. 112, second paragraph.

Claims 1-13 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The claim recitation in base claims "enzyme relating to a sugar modification" makes the claim vague and indefinite. It is unclear what the metes and bounds of the recitation "enzyme relating to a sugar chain modification" is in this context. The recitation is so broad as to be undefined and presumably includes all enzymes that are expressed in the same cell.

Claim Objections

Claims 7-8 are objected-to for not further limiting: Claim 7-8 further requires resistance to lectins, but if the genes are knocked out, they will necessarily have increased resistance to a lectin, as the lectins refered are the lectins which recognize this linkage of fucose.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:
"The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same, and shall set forth the best mode contemplated by the inventor of carrying out his invention."

Claims 1-20 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

The scope of invention as claimed encompasses a cell in which any gene encoding an enzyme that is related to fucosylation at 6th position of N-acetylglucosamine in a N-glycoside linked sugar chain is knocked out by disruption or deletion or a null mutation and wherein the cell is cultured in a serum free medium. The scope and breadth of the claim any enzyme involved in sysnthesis fucose and/or GDP-fucose substrate molecules, enzymes involved in its transport, well enzymes involved in transferring said fucose moiety to any N-glycoside linked sugars, bound or unbound to any protein (e.g. alpaha1, 6-fucosyl transferases), enzymes involved in modifying the said bound fucose moiety and enzymes involved in the elimination of said bound fucose moiety from said sugar chains etc., and any enzymes that interfere or modulate said enzyme activities involved in said fucosylation and thus encompassing enormous number of cellular enzymes. It should be noted any enzyme made by the same cell, is related, in the fact that they are used by the same cell, and encoded by the same genome.

At best the specification only teaches regarding a knockout of gene for an enzyme involved fucose transfer to 6th position of N-acetylglucosamine namely FUT8. Applicant does not teach kcock out of the gene of any other enzymes related to or involved said fucosylation as briefly indicated earlier (above paragraph).

The application does not disclose sufficient number of examples of serum free cultured cells having a kncokout or deletions in broadly claimed enzymes that are related to fucosylation at 6th position of N-acetylglucosamine in any N-glycoside linked sugar chains. Thus the description in the specification as filed does not commensurate with the scope and breadth of instant claims.

Applicant is referred to the guidelines for Written Description Requirement published January 5, 2001 in the Federal Register, Vol.66, No.4, pp.1099-1110 (see <http://www.uspto.gov>). The disclosure of a single species is rarely, if ever, sufficient to describe a broad genus, particularly when the specification fails to describe the features of that genus, even in passing. (See In re Shokal 113USPQ283(CCPA1957); Purdue Pharma L. P. vs Faulding Inc. 56 USPQ2nd 1481 (CAFC 2000). In analyzing whether the written description requirement is met for the genus claim, it is first determined whether a representative number of species have been described by their complete structure. Next, it is determined whether a representative number of species have been sufficiently described by other relevant identifying characteristics (i.e. conserved motifs or domains).

Since the specification fails to disclose other claimed gene knockouts that contained sufficient number of examples of enzymes that are related to fucosylation at 6th position of N-acetylglucosamine in N-glycoside linked sugar chains in any cultured cells, it is not possible to envision the broadly claimed gene knockouts or their phenotype. One cannot describe what one has not conceived. (See Fiddes v. Baird, 30 USP2d 1481 at 1483). Therefore, the lack of disclosure in the specification is not deemed sufficient to reasonably convey to one skilled in the art that the applicants were in possessions of the huge genera recited in the claims at the time the application was filed. Furthermore the possession may be shown by actual reduction to practice, clear depiction of the invention in a detailed drawing, or by describing the invention with sufficient relevant identifying characteristics (as it relates to the claimed invention as a whole) such that a person

skilled in the art would recognize that the inventor had possession of the claimed invention. See, e.g., Pfaff v. WellsElectronics, Inc., 525 U.S. 55, 68, 119 S.Ct. 304, 312, 48 USPQ2d 1641, 1647 (1998); Eli Lilly, 119 F.3d at 1568, 43 USPQ2d at 1406; Amgen, Inc. v. Chugai Pharmaceutical, 927 F.2d 1200, 1206, 18 USPQ2d 1016, 1021 (Fed. Cir. 1991). In the instant case the compositions as claimed has been defined only by a statement of a functional relationship that broadly encompasses any enzymes related to fucose modification on a N-glycoside linked sugar which conveyed no distinguishing information about the identity of the broadly claimed species. Accordingly one of skill in the art would conclude that applicant was not in possession of the claimed genus because a description of a single member of this genus would not be representative of claimed genus of compounds and is insufficient to support the claim in its present scope.

Claims 1-3 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for a serum free cultured cell comprising a disruption or deletion in the genomic gene for alpha-1, 6 fucosyltransferase (FUT8) is not enabled for knock out or disruption of genomic gene of any enzyme that is related to related to fucosylation at 6th position of N-acetylglucosamine in a N-glycoside linked sugar chain. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the invention commensurate in scope with these claims.

At issue, under the enablement requirement of 35 U.S.C. 112, first paragraph is whether, given the Wands-factors, the experimentation was undue or unreasonable under the circumstances. "Experimentation must not require ingenuity beyond that to be expected of one of ordinary skill in the art." See Fields v. Conover, 443 F.2d 1386, 170 USPQ 276 (CCPA 1970). These factors include, but are not limited to: (1) The breadth of the claims; (2) The nature of the invention; (3) The state of the prior art; (4) The level of one of ordinary skill; (5) The level of predictability in the art; (6) The amount of direction provided by the inventor; (7) The existence of working examples; and (8) The quantity of experimentation needed to make or use the invention based of the content of the disclosure. In re Wands, 858 F.2d 731, 737, 8 USPQ2d 1400, 1404 (Fed. Cir. 1988).

All of the wands factors have been considered with regard to the instant claims, with the most relevant factors discussed below as to show that one of the ordinary skill in the art have to go through "undue experimentation" in order to practice the invention.

Breadth of the claims And Guidance Provided in the Specification:

The scope of invention as claimed encompasses a cell in which any gene encoding an enzyme that is related to fucosylation at 6th position of N-acetylglucosamine in a N-glycoside linked sugar chain is knocked out by disruption or deletion or a null mutation and wherein the cell is cultured in a serum free medium. The scope and breadth of the claim any enzyme involved in sysnthesis fucose and/or GDP-fucose substrate molecules, enzymes involved in its transport, well enzymes involved in transferring said fucose moiety to any N-glycoside linked sugars, bound or unbound to any protein (e.g. alpaha1, 6-fucosyl transferases), enzymes involved in modifying the said bound fucose moiety and enzymes involved in the elimination of said bound fucose moiety from said sugar chains etc., and any enzymes that interfere or modulate said enzyme activities involved in said fucosylation and thus encompassing enormous number of cellular enzymes.

At best the specification only teaches an enabled example of a knockout of a single gene of an enzyme involved fucose transfer to 6th position of N-acetylglucosamine namely FUT8 in mammalian cell. Applicant does not teach kcock out of the gene of any other broadly claimed enzyme classes related to or involved said fucosylation as indicated in above paragraph. The application does not disclose any other enabled examples of cells having a kncokout or deletions in broadly claimed enzymes that are related to fucosylation at 6th position of N-acetylglucosamine in any N-glycoside linked sugar chains. In the absence of representative number of enabled examples in the specification commensurate with the breadth of the claims one of ordinary skill in the art would conclude that the invention as broadly claimed is unpredictable and would require undue experimentation to practice the invention in its full scope.

The level of one of ordinary skill in the Art at the Time of Invention: The level of one of ordinary skill in the art at the time of filing of the instant application is high requiring an advanced degree or training in the relevant field. The status of the art at

the time of filing was such that said skilled in the art would not have been able to make or use the invention for its fully claimed scope without undue experimentation.

State of the Art, the Predictability of the Art: At about the effective filing date of the present application art is unpredictable with regard to phenotypic out come of gene knock outs in cells or in the animals that bear them. This unpredictability mainly stems from redundancy in genes encoding an enzyme activity or owing to parallel pathways that compensate for the targeted or disrupted enzyme and thus the phenotypes are often confounding. Because of this unpredictability regarding the phenotype of a cell and consequently its use for any substantial purpose, one of skill in the art has to test out the effects of each of the knocked out genes of any enzymes of a pathway independently or in multiple combination.

Amount of experimentation necessary: Because of the lack of working examples, insufficient guidance and direction provided by Applicant, the inherent unpredictability of the art, and the nature of the invention, one of skill in the art would be required to perform a large amount of experimentation to make and/or use the invention in its full scope as claimed by Applicant. Such experimentation would be required to identify sufficient number of pertinent enzymes that are related to said fucosylation at 6th position of N-acetylglucosamine in a glycosidic chain, which encompasses enormous number of enzymes as indicated above, and develop a strategy to knock out such genes while or a combination genes to alter said fuose modification while keeping the cells viable. Further these claims are not enabled because one of skilled in the art, at the date of filing, would not be able to rely upon the state of the art in order to successfully predict a priori the in vivo effects of a genomic gene kockout on the viability and phenotype of the resulting cell. Accordingly, in view of the lack of teachings in the art and lack of guidance provided by the specification with regard to an enabled examples sufficient number of gene kncokouts of the genomic genes of enzymes related to fucosylation at 6th position of N-acetylglucosamine in a glycosidic chain as of around the filing date of instant application and for the specific reasons cited above, it would have required undue experimentation for one of skill in the art to make and use the full scope of the claimed invention.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-13 are rejected under 102(e) as being anticipated by Kanda et al., (USPTO PUB NO: US20030115614A1).

The above claims are drawn to a cell in which a genomic gene encoding an enzyme relating to a sugar chain modification involving fucosylation at 6-position of N-acetylglucosamine is knocked out and grown in a serum free medium.

Regarding claims 1-6 Kanda teaches CHO cells that lack or deleted with respect to involving fucosylation at 6-position of N-acetylglucosamine and further teaches cells and transgenic animals that were disrupted in the cellular genomic gene for alpha-1,6-fucosyltransferase I (e.g., paragraphs 0027; 0053-066; 0074; 0134-0135; 0315-0344; 0381-0392). Regarding claims 7-8 and 10-13 Kanda teaches isolating mutant or knockout lectin resistant cells (e.g., paragraphs 0066-0067; 0460-0462;0991) and used for producing antibody (gene expressing IgG antibody) which is a glycoprotein (e.g., 0024; 0067-0074; 0157) and growing cells in various media including serum free medium that is routine in the art (e.g., 0266; 0508) prior art and was practiced to improve process and product quality, prevent exposure to adventitious agents, and reduce costs. Thus the cited art clearly anticipates the invention as claimed.

Claims 1-13 are rejected under 102(b) as being anticipated by Kanda et al., (WO 02/31140).

The above claims are drawn to a cell in which a genomic gene encoding an enzyme relating to a sugar chain modification involving fucosylation at 6-position of N-acetylglucosamine is knocked out and grown in a serum free medium.

Regarding claims 1-6 Kanda teaches obtaining CHO cells that are gene disrupted or deleted with respect to enzymes involved I fucosylation at 6-position of N-acetylglucosamine and further teaches cells and transgenic animals that were disrupted in the cellular genomic gene for alpha-1,6-fucosyltransferase I (entire article; e.g., pages 7-9; p.12-13 {=Eng. Translation p.5-6; p.9}). Regarding claims 7-8 and 10-13 Kanda teaches isolating mutant or knockout lectin resistant cells (e.g., p.155-159 {=Eng. Trans p.77-80) and used for producing antibody (gene expressing IgG antibody) which is a glycoprotein (entire article) and growing cells in various media including serum free medium that is routine in the prior art and was practiced to improve process and product quality, prevent exposure to adventitious agents, and reduce costs. Thus the cited art clearly anticipates the invention as claimed.

Double Patenting

The non-statutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper time wise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See In re Goodman, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); In re Longi, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); In re Van Ornum, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); In re Vogel, 422 F.2d 438, 164 USPQ 619 (CCPA 1970);and, In re Thorington, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a non-statutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1-13 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 22-25, 38-41 of Application No. 10/409,616 in view of Lubiniecki et al (Dev. Biol. Stand. 1999, 99:153-6)

An obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but an examined application claim is not patentably

distinct from the reference claim because the examined claim is either anticipated by, or would have been obvious over, the reference claim.

Instant claims are drawn to are drawn to a cell in which a genomic gene encoding an enzyme relating to a sugar chain modification involving fucosylation at 6-position of N-acetylglucosamine is knocked out and grown in a serum free medium and in further limitations the cell comprises a gene encoding a glycoprotein wherein glycoprotein is an antibody where as '9616 Application a claims cell into which a gene encoding antibody is introduced which is resistant to a lectin which recognizes fucosylation at 6-position of N-acetylglucosamine and in which tan enzyme activity relating to a sugar chain modification involving fucosylation at 6-position of N-acetylglucosamine is deleted. The only difference between between these applications/patents and the cited claims is that the instant claims involve using conditioned cells in serum free media.

Regarding the limitation of using serum free medium Lubiniecki clearly teaches that growth of continuous cell lines for preparing biopharmaceuticals in the absence of animal serum has been attempted by many organizations to improve process and product quality, prevent exposure to adventitious agents, and reduce costs. Research work with CHO cells and with some hybridomas (antibody production) has been successful in providing the basis for serially propagating cells on a large scale in suspension in the total absence of serum, while preserving the ability to prepare biopharmaceuticals. In some cases, this can be achieved not only without serum, but also without the use of other animal-derived proteins (see Abstract). Hence the Artisan would be motivated to use serum free medium in order to improve process and product quality, prevent exposure to adventitious agents, and reduce costs for the isolating antibodies.

Accordingly, the claimed process in the present application and the cited patent are obvious variants. Therefore, the inventions as claimed are co-extensive. This is provisional obviousness double patenting rejection.

Claims 1-13 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1 and 7 of Application No. 11/287,359 in view of Lubiniecki et al (Dev. Biol. Stand. 1999, 99:153-6)

An obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but an examined application claim is not patentably distinct from the reference claim because the examined claim is either anticipated by, or would have been obvious over, the reference claim.

Instant claims are drawn to are drawn to a cell in which a genomic gene encoding an enzyme relating to a sugar chain modification involving fucosylation at 6-position of N-acetylglucosamine is knocked out and grown in a serum free medium and in further limitations the cell comprises a gene encoding a glycoprotein wherein glycoprotein is an antibody where as '7359 Application a claims cell into which a gene encoding antibody is introduced which has fucosylation at 6-position of N-acetylglucosamine and in which tan enzyme activity relating to a sugar chain modification involving fucosylation at 6-position of N-acetylglucosamine is deleted. The only difference between between these applications/patents and the cited claims is that the instant claims involve using conditioned cells in serum free media.

Regarding the limitation of using serum free medium Lubiniecki clearly teaches that growth of continuous cell lines for preparing biopharmaceuticals in the absence of animal serum has been attempted by many organizations to improve process and product quality, prevent exposure to adventitious agents, and reduce costs. Research work with CHO cells and with some hybridomas (antibody production) has been successful in providing the basis for serially propagating cells on a large scale in suspension in the total absence of serum, while preserving the ability to prepare biopharmaceuticals. In some cases, this can be achieved not only without serum, but also without the use of other animal-derived proteins (see Abstract). Hence the Artisan would be motivated to use serum free medium in order to improve process and product quality, prevent exposure to adventitious agents, and reduce costs for the isolating antibodies.

Accordingly, the claimed process in the present application and the cited patent are obvious variants. Therefore, the inventions as claimed are co-extensive. This is provisional obviousness double patenting rejection.

Claims 1-6 and 9-13 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 36 and 44-45 of Application No. 11/127,173 in view of Lubiniecki et al (Dev. Biol. Stand. 1999, 99:153-6)

An obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but an examined application claim is not patentably distinct from the reference claim because the examined claim is either anticipated by, or would have been obvious over, the reference claim.

Instant claims are drawn to are drawn to a cell in which a genomic gene encoding an enzyme relating to a sugar chain modification involving fucosylation at 6-position of N-acetylglucosamine is knocked out and grown in a serum free medium and in further limitations the cell comprises a gene encoding a glycoprotein wherein glycoprotein is an antibody where as '7173 Application a claims cell into which a gene encoding antibody is introduced which has N-acetylglucosamine linked sugar chain and in which an enzyme activity relating to a sugar chain modification involving fucosylation at 6-position of N-acetylglucosamine is deleted and the sugar chain is not fucosylated. It is inherent or well known in the art that the sugar chain is bound to Fc region of the antibody. The only difference between between these applications/patents and the cited claims is that the instant claims involve using conditioned cells in serum free media.

Regarding the limitation of using serum free medium Lubiniecki clearly teaches that growth of continuous cell lines for preparing biopharmaceuticals in the absence of animal serum has been attempted by many organizations to improve process and product quality, prevent exposure to adventitious agents, and reduce costs. Research work with CHO cells and with some hybridomas (antibody production) has been successful in providing the basis for serially propagating cells on a large scale in suspension in the total absence of serum, while preserving the ability to prepare biopharmaceuticals. In some cases, this can be achieved not only without serum, but also without the use of other animal-derived proteins (see Abstract). Hence the Artisan would be motivated to use serum free medium in order to improve process and product quality, prevent exposure to adventitious agents, and reduce costs for the isolating antibodies.

Accordingly, the claimed process in the present application and the cited patent are obvious variants. Therefore, the inventions as claimed are co-extensive. This is provisional obviousness double patenting rejection.

Claims 1-6 and 9-13 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 29, 31, 35, 37 of Application No. 11/131,212 in view of Lubiniecki et al (Dev. Biol. Stand. 1999, 99:153-6)

An obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but an examined application claim is not patentably distinct from the reference claim because the examined claim is either anticipated by, or would have been obvious over, the reference claim.

Instant claims are drawn to are drawn to a cell in which a genomic gene encoding an enzyme relating to a sugar chain modification involving fucosylation at 6-position of N-acetylglucosamine is knocked out and grown in a serum free medium and in further limitations the cell comprises a gene encoding a glycoprotein wherein glycoprotein is an antibody where as '1212 Application a claims cell into which a gene encoding antibody is introduced which has N-acetylglucosamine linked sugar chain and in which an enzyme activity relating to a sugar chain modification involving fucosylation at 6-position of N-acetylglucosamine is deleted and the sugar chain is not fucosylated. It is inherent or well known in the art that the sugar chain is bound to Fc region of the antibody. The only difference between between these applications/patents and the cited claims is that the instant claims involve using conditioned cells in serum free media.

Regarding the limitation of using serum free medium Lubiniecki clearly teaches that growth of continuous cell lines for preparing biopharmaceuticals in the absence of animal serum has been attempted by many organizations to improve process and product quality, prevent exposure to adventitious agents, and reduce costs. Research work with CHO cells and with some hybridomas (antibody production) has been successful in providing the basis for serially propagating cells on a large scale in suspension in the total absence of serum, while preserving the ability to prepare biopharmaceuticals. In some cases, this can be achieved not only without serum, but also without the use of other animal-derived

proteins (see Abstract). Hence the Artisan would be motivated to use serum free medium in order to improve process and product quality, prevent exposure to adventitious agents, and reduce costs for the isolating antibodies.

Accordingly, the claimed process in the present application and the cited patent are obvious variants. Therefore, the inventions as claimed are co-extensive. This is provisional obviousness double patenting rejection.

Claims 1-4, 6 and 9-13 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1, 6, 7 and 12 of Patent No. US 6,946,292 B2 in view of Lubiniecki et al (Dev. Biol. Stand. 1999, 99:153-6)

An obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but an examined application claim is not patentably distinct from the reference claim because the examined claim is either anticipated by, or would have been obvious over, the reference claim.

Instant claims are drawn to are drawn to a cell in which a genomic gene encoding an enzyme relating to a sugar chain modification involving fucosylation at 6-position of N-acetylglucosamine is knocked out and grown in a serum free medium and in further limitations the cell comprises a gene encoding a glycoprotein wherein glycoprotein is an antibody where as '6292 Patent a claims cell into which a gene encoding antibody is introduced which has N-acetylglucosamine linked sugar chain and in which an enzyme activity relating to a sugar chain modification involving fucosylation at 6-position of N-acetylglucosamine is deleted and the sugar chain is not fucosylated. It is inherent or well known in the art that the sugar chain is bound to Fc region of the antibody. The only difference between between these applications/patents and the cited claims is that the instant claims involve using conditioned cells in serum free media.

Regarding the limitation of using serum free medium Lubiniecki clearly teaches that growth of continuous cell lines for preparing biopharmaceuticals in the absence of animal serum has been attempted by many organizations to improve process and product quality, prevent exposure to adventitious agents, and reduce costs. Research work with CHO

cells and with some hybridomas (antibody production) has been successful in providing the basis for serially propagating cells on a large scale in suspension in the total absence of serum, while preserving the ability to prepare biopharmaceuticals. In some cases, this can be achieved not only without serum, but also without the use of other animal-derived proteins (see Abstract). Hence the Artisan would be motivated to use serum free medium in order to improve process and product quality, prevent exposure to adventitious agents, and reduce costs for the isolating antibodies.

Accordingly, the claimed process in the present application and the cited patent are obvious variants. Therefore, the inventions as claimed are co-extensive. This is provisional obviousness double patenting rejection.

Claims 1-4, and 9-13 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-4, 9, 13 of Application No. 11/279,748 in view of Lubiniecki et al (Dev. Biol. Stand. 1999, 99:153-6)

An obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but an examined application claim is not patentably distinct from the reference claim because the examined claim is either anticipated by, or would have been obvious over, the reference claim.

Instant claims are drawn to are drawn to a cell in which a genomic gene encoding an enzyme relating to a sugar chain modification involving fucosylation at 6-position of N-acetylglucosamine is knocked out and grown in a serum free medium and in further limitations the cell comprises a gene encoding a glycoprotein wherein glycoprotein is an antibody where as '9748 Application a claims cell into which a gene encoding antibody is introduced which has N-acetylglucosamine linked sugar chain and in which an enzyme activity relating to a sugar chain modification involving fucosylation at 6-position of N-acetylglucosamine is deleted and the sugar chain is not fucosylated. It is inherent or well known in the art that the sugar chain is bound to Fc region of the antibody. The only difference between between these applications/patents and the cited claims is that the instant claims involve using conditioned cells in serum free media.

Regarding the limitation of using serum free medium Lubiniecki clearly teaches that growth of continuous cell lines for preparing biopharmaceuticals in the absence of animal serum has been attempted by many organizations to improve process and product quality, prevent exposure to adventitious agents, and reduce costs. Research work with CHO cells and with some hybridomas (antibody production) has been successful in providing the basis for serially propagating cells on a large scale in suspension in the total absence of serum, while preserving the ability to prepare biopharmaceuticals. In some cases, this can be achieved not only without serum, but also without the use of other animal-derived proteins (see Abstract). Hence the Artisan would be motivated to use serum free medium in order to improve process and product quality, prevent exposure to adventitious agents, and reduce costs for the isolating antibodies.

Accordingly, the claimed process in the present application and the cited patent are obvious variants. Therefore, the inventions as claimed are co-extensive. This is provisional obviousness double patenting rejection.

Claims 1-4, and 9-13 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 49, 59 and 62 of Application No. 10/409,611 in view of Lubiniecki et al (Dev. Biol. Stand. 1999, 99:153-6)

An obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but an examined application claim is not patentably distinct from the reference claim because the examined claim is either anticipated by, or would have been obvious over, the reference claim.

Instant claims are drawn to are drawn to a cell in which a genomic gene encoding an enzyme relating to a sugar chain modification involving fucosylation at 6-position of N-acetylglucosamine is knocked out and grown in a serum free medium and in further limitations the cell comprises a gene encoding a glycoprotein wherein glycoprotein is an antibody where as '9611 Application a claims in the form of method claims (as product by process) a cell into which a gene encoding antibody is introduced which has N-acetylglucosamine linked sugar chain and in which an enzyme activity relating to a sugar chain modification involving fucosylation at 6-position of N-acetylglucosamine is deleted

and the sugar chain is not fucosylated. It is inherent or well known in the art that the sugar chain is bound to Fc region of the IgG antibody. The only difference between between these applications/patents and the cited claims is that the instant claims involve using conditioned cells in serum free media.

Regarding the limitation of using serum free medium Lubiniecki clearly teaches that growth of continuous cell lines for preparing biopharmaceuticals in the absence of animal serum has been attempted by many organizations to improve process and product quality, prevent exposure to adventitious agents, and reduce costs. Research work with CHO cells and with some hybridomas (antibody production) has been successful in providing the basis for serially propagating cells on a large scale in suspension in the total absence of serum, while preserving the ability to prepare biopharmaceuticals. In some cases, this can be achieved not only without serum, but also without the use of other animal-derived proteins (see Abstract). Hence the Artisan would be motivated to use serum free medium in order to improve process and product quality, prevent exposure to adventitious agents, and reduce costs for the isolating antibodies.

Accordingly, the claimed process in the present application and the cited patent are obvious variants. Therefore, the inventions as claimed are co-extensive. This is provisional obviousness double patenting rejection.

Claims 1-4, and 9-13 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1, 5, 7, 9-11, 17, 19-21, 27, 37, 39-40, and 47 of Application No. 11/126,298 in view of Lubiniecki et al (Dev. Biol. Stand. 1999, 99:153-6)

An obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but an examined application claim is not patentably distinct from the reference claim because the examined claim is either anticipated by, or would have been obvious over, the reference claim.

Instant claims are drawn to are drawn to a cell in which a genomic gene encoding an enzyme relating to a sugar chain modification involving fucosylation at 6-position of N-acetylglucosamine is knocked out and grown in a serum free medium and in further

limitations the cell comprises a gene encoding a glycoprotein wherein glycoprotein is an antibody where as '6298 Application a claims in the form of method claims (as product by process) a cell into which a gene encoding antibody is introduced which has N-acetylglucosamine linked sugar chain and in which an enzyme activity relating to a sugar chain modification involving fucosylation at 6-position of N-acetylglucosamine is deleted and the sugar chain is not fucosylated. It is inherent or well known in the art that the sugar chain is bound to Fc region of the IgG antibody. The only difference between between these applications/patents and the cited claims is that the instant claims involve using conditioned cells in serum free media.

Regarding the limitation of using serum free medium Lubiniecki clearly teaches that growth of continuous cell lines for preparing biopharmaceuticals in the absence of animal serum has been attempted by many organizations to improve process and product quality, prevent exposure to adventitious agents, and reduce costs. Research work with CHO cells and with some hybridomas (antibody production) has been successful in providing the basis for serially propagating cells on a large scale in suspension in the total absence of serum, while preserving the ability to prepare biopharmaceuticals. In some cases, this can be achieved not only without serum, but also without the use of other animal-derived proteins (see Abstract). Hence the Artisan would be motivated to use serum free medium in order to improve process and product quality, prevent exposure to adventitious agents, and reduce costs for the isolating antibodies.

Accordingly, the claimed process in the present application and the cited patent are obvious variants. Therefore, the inventions as claimed are co-extensive. This is provisional obviousness double patenting rejection.

Conclusion:

No claim allowed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to examiner Kelaginamane Hiriyanna Ph.D., whose telephone number is (571) 272-3307. The examiner can normally be reached Monday

through Thursday from 9 AM-7PM. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joseph Woitach Ph.D., may be reached at (571) 272-0739. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). When calling please have your application serial number or patent number, the type of document you are having an image problem with, the number of pages and the specific nature of the problem. For all other customer support, please call the USPTO call center (UCC) at (800) 786-9199.

/Robert M Kelly/
Primary Examiner, Art Unit 1633